

PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE

Report No.: PIDA100838

Project Name	Second Energy Sector Project (P152343)
Region	EAST ASIA AND PACIFIC
Country	Mongolia
Lending Instrument	Investment Project Financing
Project ID	P152343
Borrower(s)	Ministry of Finance
Implementing Agency	Ministry of Energy
Environmental Category	B-Partial Assessment
Date PID Prepared/Updated	24-Jan-2017
Date PID Approved/Disclosed	26-Jan-2017
Estimated Date of Appraisal Completion	
Estimated Date of Board Approval	18-Apr-2017
Appraisal Review Decision (from Decision Note)	

I. Project Context

Country Context

Mongolia is the 18th largest (around 1.6 million km²) and with a population density of around 1.9 inhabitants per km², the most sparsely populated country in the world. In 2015 Mongolia's population reached about 3 million with an annual growth rate of 2.3 percent. Ulaanbaatar, the capital and largest city, is home to about 46 percent of the country's population. Landlocked, and located in the heart of central Eurasia, Mongolia's climate is sunny, arid and cold. With wintertime temperatures regularly below -30 degrees Celsius, Mongolia is among the coldest countries in the world.

The country hosts enormous mineral resource wealth estimated at US\$1-3 trillion, with coal, copper, and gold being the principal reserves. Mining is the most significant sector of the economy, accounting for 20 percent of total output, and commodities constitute 82 percent of total exports. China is Mongolia's main export destination. Due to a lack of diversification in export products and a heavy reliance on foreign capital inflows to meet its investment needs, Mongolia is susceptible to volatile mineral market cycles.

This dependence on extraction and export of natural resources has led to a pronounced cyclicality in economic activity. Between 2010 and 2014, when commodity prices were high, the country experienced strong economic growth and rapidly declining poverty. The country moved from lower income to an upper middle-income status and the poverty rate fell from 38.8 percent in 2010

to 21.6 percent in 2014. Between 2010 and 2014 Mongolia climbed up the Human Development Index (HDI) ranking from 100th to 90th place out of 188 countries and territories, which put the country in the high human development category.

With the economic slowdown in China, falling commodity prices, since 2014 there has been a dramatic decline in Mongolia's growth. The country's Gross Domestic Product (GDP) growth rate dropped from 7.9 percent in 2014 to 2.4 percent in 2015 and is expected to slow even further in 2016, to less than 0.1 percent. Growth has been falling apace with currency appreciation, surging inflation and deteriorating business environment. In the medium term, GDP growth is expected to remain stagnant and in 2017 it is expected to reach 2.0 percent. A gradual recovery will follow and in 2018 the mining sector is forecasted to start to pick up mainly driven by a stabilization of the commodity market. The World Bank currently forecasts Mongolia's GDP to bounce back to 3.5 percent in 2018 and to 3.7 percent in 2019.

Sectoral and institutional Context

The electric power network of Mongolia comprises five main energy systems. The Central Energy System (CES), including the Dalanzadgad Energy System in the South Gobi, is the largest. The smaller energy systems are the Western Energy System (WES), the Altai-Uliastai Energy System (AuES), and the Eastern Energy System (EES). WES and CES are interconnected with Russia and are heavily dependent on imported energy. There are small capacity cross-border inter-connections with China at the border areas of Hovd and Omnogobi (South Gobi) provinces.

The CES is supplied by five Combined Heat and Power (CHP) plants, covering the main cities of Ulan Bataar, Darkhan, Erdenet and 13 aimags (provinces). The installed generation capacity in the CES is 1062 MW, however, the available capacity is only 878 MW in 2016 due to down-rating of the oldest generation units. CES is comprised of three generation companies, one heat distribution company and six power distribution companies, including the Baganuur-Southeastern Region Electricity Distribution Network (BSEDN) and Erdenet-Bulgan Electricity Distribution Network (EBEDN). The WES is served by one vertically integrated power supply company, the Western Region Energy System, and serves three aimags: Bayan Ulgii, Khovd and Uvs. In 2014, the peak demand in WES was 32 MW and the total energy consumption was 130 gigawatt-hour (GWh), of which 106 GWh and 1.7 GWh was imported from Russia and China respectively. The 12 MW Durgun hydropower plant in Khovd aimag generated 39 GWh.

Mongolia's electric power sector has been undergoing a series of reforms aiming to transform the sector into a market oriented system. In 2001, the power sector was unbundled and the Energy Regulatory Commission (ERC) was established to regulate generation, transmission, distribution, dispatch and supply of energy. ERC oversees a single-buyer model in which the National Dispatch Center (NDC) is managing a zero-balance account as it buys electricity at a regulated tariff from six generators and sells it to 12 distribution companies. Mongolia's electricity sector is owned and operated mainly by commercialized state-owned enterprises (SOEs). Independent power producers (IPPs) represent less than 1 percent of total generation capacity (about 1.01 GW) and just recently, in 2013, the first IPP, the Salkhit wind farm was commissioned. Only three of all electricity distribution companies have been privatized; however, recently the government has been considering further privatization of the remaining ones. Although NPTG is the single national transmission company, WES owns and operates its own transmission lines independent from NPTG.

The financial situation of generation and distribution companies remains precarious as a result of low tariffs to cover the operating cost, high system losses and revenue management difficulties . Mongolian law requires that electricity tariffs are set at cost recovery levels, but they are often kept low to ensure affordability by the poor segment of the population. In recent years, tariffs have been frequently raised primarily to counter this trend as well as in a response to inflationary pressure. Nevertheless, due to delays in tariff adjustments the financial situation of distribution utilities, both public and private, has not improved. Given that private utilities are fully regulated, in practice they operate like the public ones. Poor revenue management practices are another driver for the financial distress. In light of these challenges, the government has emphasized on power supply efficiency improvement.

Mongolia's power sector has been facing the challenge of reliably meeting fast growing demand . Although demand has been steadily increasing, driven by mining sector-led economic growth and urbanization, the energy production has remained subdued. This supply-demand gap has triggered more frequent and longer outages and forced distribution companies to reject a large share of new connection requests. Unless energy supply is expanded and is made more reliable through infrastructure investments and upgrades in distribution networks, hundreds of households and small and medium enterprises (SMEs) will be deprived of access to sustainable energy supply.

To meet the increasing demand for electricity, reduce the country's heavy reliance on coal and improve energy security, renewable energy (RE) solutions have been explored. Mongolia has abundant solar and wind power resources along with some hydropower opportunities and GoM has set the target to increase the share of generation capacity of renewable energy sources to 20 percent by 2020 and to 30 percent by 2030, up from the current 3 percent, and has established Feed-in Tariffs (FiTs) for wind, solar and hydropower. As a result of the generous FiTs , a substantial number of licenses with power purchase agreements (PPAs) have been granted to developers of solar power (with a total capacity of 200 MW) and wind power (with a total capacity of 450MW). Unfortunately these arrangements were made without proper consideration of the ability of the power grid to absorb this much variable power and without regard to the ability and willingness of electricity consumers to accept the necessary tariff increases. For this reason, the licensed developers have run into difficulties in establishing their plants, leaving most licenses in limbo .

The government is now considering how to more effectively and efficiently incentivize RE investment. Recent reports of auctioned solar Photo Voltaic (PV) plants that produce power at prices as low as 5-6 US cents/kWh in countries with solar potential similar to Mongolia's have given rise to doubts about the existing FiT model. GoM has thus decided to explore alternative models and in particular to understand the cost implications of solar PV plants that are competitively procured. WES has been chosen as the testbed for the first public solar investment due to its unsustainable dependency on power imports (70 percent of supply), its urgent need for generation expansion and low likelihood to attract private investment due to its remoteness and low overall load. The Scaling up Renewable Energy Program (SREP) Investment Plan (IP) for Mongolia, which was approved in November 2015, includes a US\$12.4 million allocation to be managed by the World Bank to support the establishment of a 10 MW solar PV power plant in the Western Region.

Across the country, distribution network investments are lagging behind. Obsolete and inefficient

networks have led to significant distribution losses, in many networks exceeding 25%. The regional distribution systems have reached their capacity limit and are in critical need for upgrading and capacity expansion. More than half of Mongolia's distribution lines were constructed more than 35 years ago and another third were constructed 15-30 years ago. Previously, the distribution networks in nine aimags were improved through rehabilitation and commercialization programs under the first Energy Sector Project (ESP1) financed by the World Bank during 2001-2013. Two companies that were not covered under ESP1, i.e. Baganuur-Southeastern Region Electricity Distribution Network (BSEDN) and Erdenet-Bulgan Electricity Distribution Network (EBEDN) urgently need upgrading and expansion of their power lines, substations and metering systems. Furthermore, the distribution networks and the transmission system operator lack capacity in the areas of system planning and operation modelling, which are essential for managing the system load and reducing system losses.

The World Bank Group (WBG) has previously been supporting the GoM through a number of engagements focused on grid and off-grid power sector development. In addition to the abovementioned ESP1 the Bank supported a very successful government-led solar electrification program through the Renewable Energy and Rural Electricity Access Project (REAP), which achieved a significant increase of the herder population's access to reliable electricity services by disseminating solar home systems. IFC has supported the Salkhit wind farm through investments in the parent company. Going forward, a number of new technical assistance (TA) engagements are being planned: (i) the SREP IP includes US\$1.2 million TA support to strengthen renewable energy regulations and build capacity of key stakeholders, including MoE, NDC and ERC, and (ii) the Energy Sector Management Assistance Program (ESMAP) is considering funding TA to assess the feasibility of large-scale renewable energy integration and support to efficient heating solutions for Ulaanbaatar.

There are other donors/partners actively engaged in Mongolia's energy sector, including the European Bank for Reconstruction and Development (EBRD), the Asian Development Bank (ADB), Kreditanstalt für Wiederaufbau (KfW), and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). In particular, ADB is working with the government to prepare for the other renewable energy plants as identified in the SREP IP (a 10 MW solar PV plant, a 5 MW wind farm and a 1 MW hydropower plant). EBRD was involved in the financing of the 50 MW wind farm in Salkhit and is also financing a second 50 MW wind farm in Tsetsii. KfW is considering a loan to upgrade Mongolia's transmission network and GIZ is providing technical assistance to ERC and NDC. The team is in close coordination with these development partners to seek synergies and avoid overlapping.

Coordinating with other donor activities and building on the achievements of the ESP1 and ongoing technical assistances, the proposed Project is designed to continue supporting GoM in addressing key bottlenecks in select distribution companies through upgrades of aging assets and expansion of distribution capacity and the development of renewable energy. Meanwhile, the regulatory support with SREP grant and other trust funded activities linked to the proposed Project is expected to strengthen the regulatory framework to ultimately move towards a more sustainable energy sector development path.

II. Proposed Development Objectives

The development objective of the proposed project is to improve reliability and sustainability of electricity services in Mongolia.

III. Project Description

Component Name

Rehabilitation of Distribution Networks

Comments (optional)

This component will have three sub-components: (1.1) Rehabilitation of distribution grid in BSEDN, (1.2) Rehabilitation of distribution grid in EBEDN; and (1.3) Support to transmission company. The purpose of sub-components 1.1 and 1.2 is to reduce system losses and improve reliability of and access to electricity services in selected parts of the distribution networks through strengthening of power infrastructure of two regional distribution company networks: BSEDN and EBEDN. Sub-component 1.3 will also invest in switchgears in the transmission network which is related to the subprojects in Component 1.1 and 1.2, and introduce planning and management software to the transmission company, NPTG.

Component Name

Solar Power

Comments (optional)

The component will support investments to construct grid connected solar PV power generation capacity outside of the Central Energy System (CES). The purpose of the component is to support upscaling of rural renewable energy by demonstrating the application of solar PV generation in remote areas. Group I includes the investment in a 10 MW-peak grid connected solar photovoltaic power plant in the Western Energy System (WES). The subcomponent will finance detailed design, supply, construction, commissioning and operation & maintenance of the solar plant. Any Group II project will be selected from a list of potential solar PV plants outside the CES and will depend on the availability of funds after financing the 10 MW Group I subproject.

Component Name

Capacity Building

Comments (optional)

The purpose of this component is to strengthen the capacity of the project management office (PMO) under the Ministry of Energy and the implementing units (PIUs) of three regional distribution companies (BNEDN, EBEDN, WES) through provision of technical assistance, training and study tours. The component includes: (i) technical assistance for project implementation and special studies to support project management and implementation; (ii) training programs to improve the project management capabilities; and (iii) project management cost.

IV. Financing (in USD Million)

Total Project Cost:	55.40	Total Bank Financing:	42.00
Financing Gap:	0.00		
For Loans/Credits/Others			Amount
BORROWER/RECIPIENT			1.00
International Development Association (IDA)			42.00
Strategic Climate Fund Grant			12.40
Total			55.40

V. Implementation

A. Institutional and Implementation Arrangements

A Project Steering Committee (PSC) will be established to provide overall strategic and policy guidance and facilitate coordination among different agencies on project implementation. The PSC will be chaired by MoE and will comprise representatives from MoE, Ministry of Finance (MoF), Ministry of Environment, local government, etc.

A PMO has already been established within Ministry of Energy (MoE) headed by a Project Director ➤ (this position is expected to be filled by the Director General of the Energy Policy and Planning Department of MoE. Some of the PMO staff are familiar with Bank-funded projects and have developed internal capacity through the implementation of the ESP1. The PMO has dedicated teams of staff to work on environmental and social safeguards, procurement, financial management and disbursement. Two technical units of the PMO are responsible for coordinating and supervising technical and safeguards related aspects of Component 1 and 2 (called Technical Unit 1 and 2 respectively) both supported by procurement and financial management staff common for the project. In addition separate Project Implementation Units (PIU) has been established inside each of the four Project beneficiary institutions (BSEDN, EBEDN, NPTG, and WES). The PIUs have also assigned staff to be responsible for the social and environmental management for the project. Trainings on procurement, financial management and safeguards are being or will be provided by the Bank to the PMO and PIUs staff throughout preparation and implementation.

B. Results Monitoring and Evaluation

The PMO will monitor overall project implementation against the performance indicators listed in the ➤ (PDO Level Results Indicators ➤ (section every six months. The PMO is familiar with monitoring and evaluation (M&E) procedures, given its experience with ESP1. Data and statistics on actual project outputs and outcomes will be gathered, analyzed and included in the quarterly progress reports to be submitted to the Bank. The PMO collect inputs from PIUs at least twice a month to reflect implementation progress and outstanding issues. The M&E framework will be monitored and updated in a systematic manner and made available in progress reports and supervision documents by the PMO.

C. Sustainability

The PDO of the proposed project includes ➤ (sustainability ➤ (as one of the key elements. By establishing a solar PV power plant, Project Component 2 aims to provide additional supply to the grid to sustainably meet existing and future demand. The proposed project has been designed for sustainability, including incorporating lessons learned from ESP1 (P040907) and integrating capacity building. Capacity building support will be provided during project preparation and implementation through training, technical assistance, and Bank staff inputs. The expected improvement in operational performance will lead to a higher level of operational sustainability. Also, the proposed project will improve the financial performance of EBEDN, BSEDN and WES, thereby making them more financially sustainable.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	x	
Natural Habitats OP/BP 4.04	x	

Forests OP/BP 4.36		x
Pest Management OP 4.09		x
Physical Cultural Resources OP/BP 4.11	x	
Indigenous Peoples OP/BP 4.10		x
Involuntary Resettlement OP/BP 4.12	x	
Safety of Dams OP/BP 4.37		x
Projects on International Waterways OP/BP 7.50		x
Projects in Disputed Areas OP/BP 7.60		x

Comments (optional)**VII. Contact point****World Bank**

Contact: Peter Johansen
 Title: Senior Energy Specialist
 Tel: 458-5578
 Email: pjohansen@worldbank.org

Borrower/Client/Recipient

Name: Ministry of Finance
 Contact: Batsengee Dorjsemed
 Title: Director General, Development Financing Department
 Tel: 976-51-262-272
 Email: dorjsemed_b@mof.gov.mn

Implementing Agencies

Name: Ministry of Energy
 Contact: Chimeddorj Demchigjav
 Title: Director General
 Tel: n/a
 Email: chdorj@energy.gov.mn

VIII. For more information contact:

The World Bank
 1818 H Street, NW
 Washington, D.C. 20433
 Telephone: (202) 473-1000
 Web: <http://www.worldbank.org/projects>